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Diversification in a small oil exporting economy

The impact of the Dutch disease on Kuwait's industrialization

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The purpose of this paper is to examine Kuwaiti industrial development and, in particular, several Dutch disease factors – the impact of the movements in the real exchange rate and the relative rates of sectoral inflation on the country's pattern of development. The Dutch disease was found to be particularly strong in the years immediately prior to the oil price declines in 1982. However, even before the 1990 invasion of Kuwait, and based on oil market forecasts at the time, analysis suggests that devaluation of the country's currency would not necessarily have resulted in a major expansion of industrial output.

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The potential difficulties involved in relying on primary exports for a large fraction of foreign exchange earnings have long been a preoccupation of development economists. The focus of this work, however, has been on export price and revenue instability, declining terms of trade and balance of payments crisis resulting from the collapse of primary export markets. Little attention has been paid to problems associated with export booms. Obviously this is partly due to the fact that such booms are in fact beneficial. They relax the foreign exchange constraint on growth in countries often facing continual balance of payments deficits and are accompanied by expansion of domestic production and incomes.[1]

Recent literature[2] on primary producing developing countries increasingly stresses the fact that an export boom can be a mixed blessing. While the increase in national income and improvement in the balance of payments are welcomed, some sectors can be adversely affected as both output and factor incomes fall. When these sectors consist of manufactured goods deindustrialization occurs. Because of the possibility of such an outcome, such export windfalls have been stigmatized as the Dutch disease. This term derives from the difficulties experienced by the Dutch manufacturing sector as a result of the natural gas discoveries of the 1960s. The export boom caused a real appreciation of the guilder (above the level at which it would otherwise have been), reducing the competitiveness of Dutch industry relative to the rest of the world.

As Al-Sabah notes[3] the Dutch disease is not unique to oil or gas exporting countries, but has occurred in a variety of environments:

1. The natural gas discoveries in the Netherlands in the 1960s led to an appreciation in the real exchange rate, brought about not so much by an appreciation in the nominal exchange rate as by nominal wage increases ahead of those of West Germany, with the net result that her export industries were squeezed and a decline in Dutch manufacturing set in.

[1]Linda Kamas, 'Dutch disease economics and the Colombian export boom', *World Development*, Vol 14, 1986, pp 1177–1198.

[2]See, for example, Alan Gelb and Associates, *Oil Windfalls: Blessing or Curse?*, Oxford University Press, New York, 1988; and J. Peter Neary and Sweder van Wijnbergen, *Natural Resources and the Macroeconomy*, Basil Blackwell, Oxford, 1985.

[3]Mohammad Al-Sabah, 'The "Dutch disease" in an oil exporting country: Kuwait', *OPEC Review*, Summer 1988, p 129.

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2. The boom in technologically advanced parts of Japan's manufacturing sector in the 1960s had adverse effects on the less dynamic tradable sectors, including agriculture.
3. The boom in the export of Swiss bonds and money in the 1970s led to a real appreciation in the Swiss franc and had an adverse effect on traditional Swiss exports and export competing industries.

In all of these cases there was an erosion of the existing productive sectors (particularly agriculture and manufacturing) as a result of a general cost increase caused by a salary and wage pull from the oil and government sectors and a lack of competitiveness against imports and in export markets, due to the strengthening of the local exchange rate in response to the resource based trade surplus.

However, in testing the applicability of the Dutch disease theory to the Arabian Gulf economies, Stevens[4] notes that these countries may not experience the classic problems associated with a booming sector because these countries actually had little by way of directly productive activities before the discovery of oil and hence there was little to be damaged.

It is not inevitable, therefore, that Kuwaiti manufacturing industries experience net negative effects from the post 1973–74 oil boom. Given their low initial level of industrialization and the lack of an indigenous capital goods sector, an appreciating currency could provide a net subsidy rather than a cost to indigenous manufacturers; by reducing the cost of imported capital and intermediate goods.

This effect may be particularly relevant to Kuwait where one of the main inputs to industrial production, workers, is largely foreign, and therefore essentially imported. The same applies to other tradable sectors. *A priori*, therefore, it is impossible to draw any conclusions as to whether the Dutch disease has been a major obstacle to the development of manufacturing in Kuwait.

The purpose of this paper is to examine Kuwaiti industrial development and, in particular, several Dutch disease factors – the impact of the movements in the real exchange rate[5] and the relative rates of sectoral inflation on the country's pattern of development. Based on the results of this analysis, several conclusions are drawn concerning the country's economic diversification policies.

Impact of government expenditures on industrial diversification

Government expenditures in Kuwait, particularly direct investment in productive capacity, have obviously played a large and direct role in the country's industrial expansion. On the other hand some of the side effects associated with this expenditure may have created an environment where the private sector experiences increased difficulties in competing on a profitable basis with foreign producers.

Specifically, government expenditures in oil based economies have the potential to set off a chain of price effects, whereby the profitability of internationally traded goods falls relative to non-traded goods – the so called Dutch disease effect. In a Dutch disease environment petroleum financed public sector expenditures result in expanded imports, and there is a decline in the relative price of traded goods. These patterns occur due to excess demand increasing the price of non-traded goods (mostly construction and services).

[4]Paul Stevens, 'The impact of oil on the role of the state in economic development: a case study of the Arab world', *Arab Affairs*, Summer 1986, pp 87–101.
[5]In the analysis that follows, the real exchange rate is estimated as the index of the Kuwaiti dinar to dollar rate divided by the implicit gross domestic product (GDP) deflator and multiplied by an index of import prices (a decrease in the index represents a real appreciation). Cf. Michael Roemer, 'Dutch disease in developing countries: swallowing bitter medicine', in Mats Lundahl, ed, *The Primary Sector in Economic Development: Proceedings of the Seventh Arne Ryde Symposium*, Frostavallen, 29–30 August 1983, Croom Helm, London, 1985, p 243.

Since firms producing non-traded goods by definition do not have to face international competition they have the potential to maintain or even increase their profitability by passing on cost increases in the form of higher domestic prices for their products. Firms producing traded goods, on the other hand, do not have this option because they have to meet foreign competition. Government assistance in the form of important restrictions could alleviate this situation. However, in Kuwait the government has for philosophical reasons in large part adapted a free market approach to direct government intervention.

Whether or not the profitability of traded goods has fallen significantly in the country is, of course, ultimately an empirical matter. If this situation has developed potentially dynamic industries such as manufacturing will not be in a position to be the leading sector which many of the country's development plans envisage. Put differently, the expansion in employment and output in manufacturing industry in the post 1973–74 era has been suppressed below normal levels.

Previous studies have found some evidence of the presence of the Dutch disease in the region.[6] The orientation of these studies was largely theoretical, however, with few if any policy ramifications considered. To overcome this limitation, the following sections examine the recent evolution of the Kuwaiti economy. Particular attention will be focused on identifying the existence of Dutch disease and to what extent the problems associated with it can be overcome through public policy.

Kuwait: patterns of economic expansion

The industrial evolution of Kuwait has occurred in three discernible stages.[7] The first was the establishment of a wide range of construction materials industries in response to the government's plan to use its vast oil revenues to expand and improve the country's infrastructure. The second was concentrated in consumer oriented industries in response to the sharp increase in the demand for consumer goods, which resulted from the substantial influx of immigrant workers required to build the country's infrastructure. The third stage was represented by downstream hydrocarbon industries such as petroleum refining, fertilizers, petrochemicals and pharmaceuticals. The surge in these industries was effected by the government's attempt to harness the economy's comparative advantage in order to diversify the industrial sector, to reduce the country's dependence on crude oil exports, and to broaden the income base of the country.

The present industrial sector in Kuwait can be segmented into four identifiable types of industrial activity:[8]

1. Industries with abundant local materials: this group of industries obtains its cost advantage primarily from the availability of basic raw materials at home. Based on the abundance of natural gas and oil, where the latter can be used as a source of energy as well as feedstock, a host of refined petroleum products and petrochemicals can be produced at home for export. Some progress has already been achieved in the area of refined products and much can still be accomplished in intermediate and final petrochemicals. Similarly there are other industries whose major inputs are available at home, such as foam glass from solid waste, reclaimed rubber from discarded tyres, oil lubricants from discarded auto-

[6]See, for example, Ahead Gauzier, 'Prices and output in two oil based economies: the Dutch disease in Iran and Nigeria' *IDS Bulletin*, October 1986, pp 14–21; Robert E. Looney, 'Oil revenues and viable development: impact of the Dutch disease on Saudi Arabian diversification efforts', *American Arab Affairs*, Winter 1988/89, pp 29–35; and *op cit*, Ref 3.
[7]Maurice Gorgeous, *Industrial Progress in Small Oil-Exporting Countries*, Westview Press, Boulder, CO, 1984, pp 5–6.
[8]*Ibid*, pp 7–8.

mobile oil, leather from animal waste etc. These activities possess a clear cut comparative cost advantage.

2. Industries with natural trade protection: the basic assumption here is that the shipping cost of certain products from other countries may be sufficiently high to render local production economically competitive eg cement, asbestos pipes, bricks and aggregates. This assumption readily explains the second ranking already achieved by the construction materials industry in the Kuwaiti economy. Industries producing non-traded goods, such as desalinated water, have also flourished and expanded in response to population and commercial expansion.
3. Strategic industries: these industries do not necessarily belong to the two categories mentioned above. Whether or not they exhibit comparative advantage and/or are naturally protected from foreign competition they were established to give the nation a measure of economic independence despite reliance on government subsidies. Processed food products, soft drinks, milk, bread and pharmaceuticals fall into this category.
4. Industries with comparative cost advantage: based on the optimal economic size and sufficiency of the domestic demand, many industries are competitive as a result of Kuwait's factor endowments *vis-à-vis* its trading partners. The basic premise here is that the structure of Kuwait's factor prices relative to other countries would, in certain industries according to the relative cost of each input to a unit of output, make it advantageous to produce the product at home instead of importing it. Examples that already exist in Kuwait include assembling central air conditioning units, printing, stationery, packaging materials, apparel and automobile batteries.

The industrial sector in Kuwait currently accounts for around 9% of GDP. Much of this output is concentrated in the state owned refineries, petrochemical installations and in power and desalination plants, although the light manufacturing sector makes a more significant contribution to employment.

The rather small share that manufacturing industry contributes to Kuwait's non-oil GDP is attributable to both the small size of the country's population and to the fact that the government has stood back from further local downstream industrialization of the oil and gas sector in recent years. The rather slow growth of Kuwaiti manufacturing (Table 1) is often attributed to small domestic markets. However, Al-Sabah's analysis,[9] while only covering the 1970s, points to more fundamental Dutch disease related causes: the slow down of manufacturing in the 1980s may simply be symptomatic of the residual effects of the pre-1982 oil boom.

Along these lines it should be noted that while there are notable exceptions, many manufacturing firms grew faster in the pre-1975 years than in later periods. The reverse appears to be the case for many of the service oriented sectors. Again these patterns suggest that the simple Dutch disease explanation of growth in Kuwait does have validity. The patterns of sectoral growth are so varied, however, that additional factors need to be incorporated before a complete assessment of the factors responsible for the observed patterns of growth over the last decade and a half can be made.

The sectoral growth rates also indicate a considerable dichotomy

[9] *Op cit*, Ref 3.

Table 1. Kuwait: sectoral growth, 1977–86 (constant 1984 prices, million Kuwaiti dinars).

Sector	Growth 1970–86	1970–74	1977–86	1982–86
Agriculture and fishing				
Agriculture	12.4	10.6	27.8	27.3
Fishing	−4.6	3.4	−4.2	−7.3
Mining and quarrying	−1.3	33.49	−19.1	−13.1
Manufacturing				
Food, beverages and tobacco	4.5	3.5	7.2	7.9
Textiles and apparel	3.9	31.2	3.0	−1.4
Wood and wood products	5.1	9.2	−6.1	−6.2
Paper, printing and publishing	8.1	12.7	0.6	−3.2
Petroleum refining	1.5	−2.1	5.9	8.8
Chemicals	6.3	43.3	−1.7	0.6
Non-metallic minerals	7.2	17.7	−0.4	−5.0
Basic metals	4.1	29.0	−15.2	−21.6
Fabricated metal products	6.6	14.8	3.2	−7.8
Other manufactures	1.9	0.0	−5.2	0.0
Construction	3.1	7.5	−4.9	−14.0
Private services				
Wholesale and retail trade	3.4	3.4	−0.7	−11.2
Hotels and restaurants	7.2	0.6	1.2	−10.1
Transport and storage	4.0	4.1	6.6	−8.7
Communications	13.2	14.3	18.9	0.8
Financial institutions	6.0	3.4	8.1	−0.1
Insurance	4.9	2.3	2.8	−1.1
Real estate	1.9	2.6	4.0.	9.3
Personal and household	1.5	6.7	−0.1	−5.2
Public services				
Public administration and defence	2.5	10.2	3.1	3.4
Sanitation	5.1	5.3	9.8	4.4
Education	4.2	8.0	3.5	1.4
Health	4.2	4.5	5.9	2.4
Social security and welfare	6.0	7.4	5.0	3.5
Recreational and cultural	2.7	3.8	2.8	1.8

Source: Computed from data in State of Kuwait, Ministry of Planning, Central Statistical Office, *Annual Statistical Abstract*, 1987, pp 268–269.

between sectors, with those sectors likely to consist largely of non-traded goods growing faster (especially during the oil boom years of 1976–81) than sectors likely to be dominated by tradable activities. These patterns appear to relate to the underlying Dutch disease mechanism of sectoral growth – differential rates of inflation between tradables and non-tradables.

During the period of highest inflation in Kuwait (1974–82), manufacturing sectors in general experienced much lower rates of inflation than their service sector counterparts. Many of the manufacturing activities did not have rates of inflation appreciably above their long-run average (1970–86) over this period. Again with several exceptions the service sectors tended to have appreciably higher inflation relative to their long-run average during the 1970–82 period (Table 2).

Mechanisms of economic expansion

Clearly the output of the various sectors of the Kuwaiti economy will be simultaneously affected by a number of factors in addition to those related to the appreciation of the real exchange rate. These factors need to be controlled for in order to obtain unbiased estimates of the Dutch disease impact. It is assumed here that output of each sector is a function of the relative profitability of that sector, which in turn is a function of:

- the Dutch disease proper as proxied by the real exchange rate;
- sectoral output as between tradables and non-tradables, as proxied

Table 2. Kuwait: sectoral inflation 1970–86 (implicit GDP price deflators, 1984=100).

Sector	Value 1974	1982	Growth 1974–82	1970–86
Agriculture and fishing				
Agriculture	0.631	1.180	8.14	5.66
Fishing	0.329	1.222	17.82	12.65
Mining and quarrying	0.593	0.952	6.10	5.24
Manufacturing				
Food, beverages and tobacco	0.603	0.969	6.11	5.78
Textiles and apparel	0.628	0.996	5.93	6.16
Wood and wood products	0.634	0.912	4.64	4.87
Paper, printing and publishing	0.620	0.865	4.25	5.50
Petroleum refining	0.934	0.629	−4.82	16.59
Chemicals	0.517	0.890	7.02	6.01
Non-metallic minerals	0.652	0.997	5.45	5.38
Basic metals	0.804	0.973	2.41	5.06
Fabricated metal products	0.648	1.066	6.41	4.09
Other manufactures	0.592	1.000	6.77	6.40
Construction	0.554	0.943	6.87	5.91
Private services				
Wholesale and retail trade	0.581	0.961	6.49	5.71
Hotels and restaurants	0.337	0.785	11.15	8.35
Transport and storage	0.573	0.936	6.32	6.08
Communications	0.980	1.000	0.26	0.41
Insurance	0.614	0.994	6.20	7.51
Real estate	0.416	2.349	24.15	6.16
Personal and household	0.324	0.863	13.02	8.80
Public services				
Public administration and defence	0.323	1.012	15.34	9.87
Sanitation	0.408	0.864	9.83	6.46
Education	0.360	0.855	11.41	8.98
Health	0.388	0.965	12.06	8.37
Social security and welfare	0.306	0.901	14.45	10.98
Recreational and cultural	0.431	0.814	8.27	9.71

Source: Computed from data in State of Kuwait, Ministry of Planning, Central Statistical Office, *Annual Statistical Abstract*, 1987, pp 268–269.

by the relative rate of sectoral inflation to that of the non-oil sectors of the economy as a whole;

- resource shift factors, as proxied by the expected rate of inflation;[10]
- government subsidies as proxied by subsidized electricity; and
- the general expansion in overall demand.

This last variable is simply included as a control variable ie there may be slow downs in sectoral activity not related to the Dutch disease *per se*, but rather to the general fall in sectoral demand brought on by a decline in oil revenues and/or government expenditures. Its expected sign is positive.

The main findings of the regression analysis on sectoral growth (Table 3) indicate the following:

- Primary activities – agriculture, fishing and mining – exhibit mixed results with agriculture and mining experiencing weak Dutch disease effects and fishing obtaining a positive stimulus from this effect. As already noted Kuwait is largely self sufficient in fish and in this sense, given transport costs, the sector is effectively comprised of non-tradables.
- Manufacturing activities exhibit a fairly consistent pattern. As anticipated, this sector, comprised largely of products that are tradable, experienced generally negative impacts from an appreciating exchange rate, and an increase in relative prices.

[10]The expected rate of inflation is estimated by regressing the private sector price deflator on its value for the previous year.

[11]The full set of regression results are available from the author upon request. Regressions for each sector were performed with a Cochrane-Orcutt iterative estimation procedure to correct for serial correlation. All variables were in constant 1984 prices.

Table 3. Kuwait: factors affecting sectoral growth.[a]

Sector	Dutch disease	Relative inflation	Expected inflation	Economic expansion
Agriculture				
Agriculture	–	–	–	ins
Fishing	+	ins	–	ins
Mining	–	ins	ins	+
Manufacturing				
Food	–	ins	ins	+
Textiles	–	–	+	+
Wood products	–	ins	ins	+
Paper products	ins	–	+	+
Petroleum refining	–	ins	ins	ins
Chemicals	ins	–	ins	ins
Non-metallic minerals	–	ins	ins	+
Basic metals	ins	–	ins	ins
Fabricated metals	–	ins	+	+
Other manufacturing	–	–	ins	+
Construction	+	ins	+	+
Private services				
Trade	ins	–	–	+
Hotels	+	–	+	+
Transport	+	–	–	ins
Communications	+	+	+	ins
Finance	+	ins	+	ins
Insurance	ins	ins	ins	+
Real estate	+	ins	ins	ins
Private services	+	ins	ins	ins
Public services				
Public administration	ins	ins	–	+
Sanitation	+	ins	+	+
Education	+	–	+	+
Health	+	ins	+	+
Social security	+	ins	–	ins
Recreation	ins	+	+	ins

[a](+) = positive impact on sectoral output and employment; (–) = negative impact on sectoral output and employment; (ins) = no or little impact on sectoral output and employment. Those sectors receiving a positive stimulus from subsidized electricity were agriculture, food, textiles and petroleum refining.

- As expected, services consisting largely of non-tradables generally experienced positive Dutch disease effects.

Other explanations

While the results of the analysis of movements in real exchange rates and relative prices indicated the pervasive presence of the Dutch disease in Kuwait, it should be noted that output of most of the traded sectors has continued to decline even during the post-1982 period of real exchange depreciation. Does this mean that the Dutch disease effects produced during the period of an appreciating exchange rate created irreversible disincentives to manufacturing and thus the ability of this sector to create jobs?

Here it should be noted that the slow down in industry in Kuwait since 1982 may have been due to once and for all factors, albeit ones sufficient to offset the stimulating effect of the reverse Dutch disease. In particular, a number of disappointments have been attributed to both bad management and the depressed trading conditions in Kuwait that have followed the Souk al-Manakh crisis and the collapse of the Iraqi market.

The recent slow growth of Kuwaiti industries has also been attributed to the fact that:[12]

- Mistakes were committed in the planning stages due to incomplete economic, technical and marketing studies, and this resulted in huge industrial losses with the selling price of some commodities becoming 40% lower than forecast.

[12]*Arab Industry Review*, Falcon Publishing, Manama, Bahrain, 1987/88, pp 107–108.

- Some studies even failed to determine the production capacity of projects. Some studies expected factories to reach maximum production within a short period and overlooked the link between production growth and labour on the one hand and market demand on the other.
- Some industrial projects did not get sufficient land for their activities or failed to obtain official permission. An important obstacle has been the almost complete lack of coordination among industrial projects, resulting in the establishment of several similar industries at the same time. This increased competition and created subsequent problems.
- Some industrial projects in the form of shareholding companies or individual projects faced financing problems. The owners could not complete the required capital and depended on bank loans for which they paid high interest rates, thus reducing profitability.
- The Kuwaiti market has a high purchasing power but low sales because of the small population. This problem could have been overcome by exports to other Gulf markets but lack of coordination has resulted in duplication of industries. The world economic situation in the early 1980s also harmed local industries as the recession forced companies to reduce the price of their exports while at the same time facing increased volumes of imports at reduced prices.

Except for the still relatively small size of the domestic market, these factors were to a large extent no longer present even before the Iraqi invasion of August 1990. However, as the analysis above indicated, most of the traded goods sectors are positively affected by overall increases in demand. Given the projected flat demand over the next five or so years it is apparent that devaluation of the currency will not necessarily result in a major expansion of industrial output.

Policy implications

Given that this paper was written before the 2 August 1990 invasion of Kuwait, the policy implications that follow are now merely academic. However, before the invasion the pervasive disincentive for industrial production in Kuwait associated with the Dutch disease had a number of implications for both economic policy and the country's overall development strategy. Most of the Dutch disease literature has focused on the consequences of a fall in oil revenues. A theoretically symmetrical situation applies when there is a decrease in revenues, but in many ways the problems are more severe.

In this situation adjustment to the new revenue position would have required a contraction of the non-traded sectors of the economy ie most services, both public and private, and construction together with an expansion of the traded sectors – manufacturing and perhaps agriculture. Again before the invasion, and given at that time the likelihood of flat oil markets into the mid-1990s, the Kuwaiti government had several policies at its disposal to mitigate the effects of fluctuating oil revenues. These included:

- an increase in traded production capacity by importing capital and labour;
- a decrease in the holding of foreign assets;

- devaluation of the real exchange rate;
- provision of wage subsidies to the non-traded sectors;
- the use of fiscal policy (indirect taxes) to adjust the sectoral impact of changing revenues;
- the development of a fund to compensate (tax) firms for movements in the real exchange rate.

With regard to the first policy, it was apparent that a large segment of Kuwaiti public opinion opposed further expansion in the industrial sector through this means. This opposition was based largely on non-economic arguments, centring on the threat to the already delicate balance that exists among the number of Kuwaitis and non-Kuwaitis in the country. The second and fourth strategies were, of course, always possible in the short run but in the longer term are non-viable, even for a country as rich as Kuwait. Theoretically, the fifth policy should have been effective during periods of increasing revenues where taxes would be reduced. While this was somewhat successful in Saudi Arabia, Kuwait's taxes were so low that the scope for successful application is extremely limited. Raising indirect taxes when oil revenues fall was also likely to be unsuccessful:

> This policy would lower real wages and increase consumer prices. The room for maneuver in changing traded good prices would then be reduced. This would slow the recovery of the traded goods sectors and leave unemployed resources in the non-traded goods sector.[13]

While the sixth option was an intriguing possibility, it was not clear how to operationalize the payments – how was overvaluation to be measured (which price indices) and how was compensation to be made – full? partial?

Before the invasion, therefore, this left devaluation of the real exchange rate as the only apparent policy option currently open to Kuwaiti authorities for dealing with both the consequences of past fluctuations in oil revenues (and probable further declines over the next five or so years). In this regard it should be noted that during the period of rising oil revenues the Kuwaiti government offset some pressures for exchange appreciation by increasing its holdings of foreign assets. Still, as the analysis above indicates, increases in the real exchange rate had a pervasive effect in retarding growth of nearly all the major non-service sectors of the economy.

Given the likelihood before the invasion of continued static levels of oil revenues, reverse movements were required and the exchange rate needed to be devalued. This was likely to be much more difficult to achieve. The effectiveness of any attempt to significantly correct the external imbalance with a devaluation of the nominal exchange rate should have depended on a number of factors. As is well known, a devaluation raises the prices of imported goods and initially worsens the balance of trade in the domestic currency. The effects on the volume of exports, imports and domestically produced goods, which act to improve the balance, appear with a long and often irregular lag. Hence, if the price effects were to impact more rapidly than the real effects, then the policy would be unsuccessful. The pace at which the domestic price level changes relative to the exchange rate is, of course, measured by the real exchange rate and that is why this variable is of such importance. For an effective devaluation, this real rate had to be maintained for a period of at least three to four years.

[13]Anil Markandya and Malcolm Pemberton, 'Economic policy with fluctuating oil revenues', *OPEC Review*, Spring 1988, p 27.

With regard to the real exchange rate there is evidence that, given its economic structure, real devaluations of the currency may have been possible in Kuwait. For example, after the first oil shock (1972–75) Kuwait managed to keep its rate of inflation even lower than that of the USA. This occurred while countries even as stable as Saudi Arabia could not contain pressures on non-traded goods (with a resulting price increase of 62% greater than the USA).

Of the leading oil producers, only Kuwait achieved a lower rate of inflation than the USA during the period between oil shocks (1975–79). Saudi Arabia had a rate of inflation 25% higher than that of the USA during this period. Between 1979 and 1982 the US inflation rate was 33%, while Kuwait's was only 28%.

Since 1982 oil revenues have been falling in real dollar terms with consequent pressure of non-traded goods prices and government revenues. While coping with the contraction had proved inflationary in some countries, prices rose by only 7% in Kuwait. (In Venezuela, Indonesia, Nigeria and Mexico, they rose by 33%, 41%, 80% and 427% respectively.) By comparison the US inflation rate during that period was 11%.

In terms of the real exchange rate between 1973 and 1977, Kuwait's real exchange rate appreciated by 31% (compared to 79% for Saudi Arabia). Following the second oil shock (1979–81) Kuwait's exchange rate devalued by 8% (relative to 15% for Saudi Arabia). Between 1981 and 1985 Kuwait had been able to devalue its real exchange rate by 17% (relative to 20% in Saudi Arabia). Clearly Kuwait's large foreign assets have allowed it to control its domestic rate of inflation and facilitated the devaluation of its exchange rate. The country's foreign assets have also allowed inflationary financing to be avoided.

In fact, Kuwait had been able to successfully devalue its real exchange rate continuously since 1979. Given its large foreign asset position, there is no reason this policy could not have been continued in the foreseeable future, with ultimately beneficial effects on industrial output.

Conclusions

Given the post 1982 fall in the dollar/dinar exchange rate the future should have been somewhat brighter for Kuwaiti industry. However, as the analysis above indicated, most of the traded goods sectors were positively affected by overall increases in demand. Given the pre-invasion projected decline in demand over the next five or so years it was apparent that devaluation of the country's currency would not necessarily have resulted in a major expansion of industrial output. It should, however, have provided a stimulus to these activities and helped the country position itself for the anticipated upswing in oil markets in the mid-1990s.

Appendix

Data sources

The data used in the analysis was for the years 1970–86. Data on sectoral output was taken from State of Kuwait, Ministry of Planning, Central Statistical Office, *Annual Statistical Abstract*, various issues. Economic data were from International Monetary Fund, *International Financial Statistics*, various issues.

Estimation procedures

Equations of the form:

Sectoral output = f [expenditures, credit, real exchange rate, utility subsidies, and resource non-homogeneity/substitutability effects]

were estimated using ordinary least squares estimation technique with a Cochrane-Orcutt iterative estimation procedure to correct for serial correlation in the independent variables.

Given that the exchange rate is in dollars/dinar the expected sign of the relative price effect – the Dutch disease – is expected to be negative for sectors where tradables predominate – agriculture and manufacturing – and positive for sectors composed largely of non-tradables – construction and services.

The expected sign for the net resource, non-homogeneity/substitutability effects – the non-relative price effects – is less straightforward. For lack of a better index we assume that these effects are (albeit imperfectly) captured by the impact of inflation, both expected and unexpected, on sectoral profitability. Specifically, if a sector is largely comprised of tradables, but also contains a significant percentage of non-tradables or goods for which imports are poor substitutes, increases in the expected and or unexpected rate of inflation should increase the profitability of this proportion of sectoral activity after controlling for the Dutch disease effects. A positive sign on the inflation terms is assumed to indicate the predominance of these effects.

On the other hand a negative sign on the inflation term is assumed to be indicative of the predominance of the resource effect associated with the Dutch disease ie the profitability of non-tradables in other sectors of the economy being sufficiently high to divert resources from the sector under consideration.

For sectors largely comprised of non-tradables we would expect signs the reverse of those anticipated for the tradable sectors.

Variables used in analysis

Sectoral variables

Agriculture output, constant 1984 prices
Fishing output, constant 1984 prices
Mining output, constant 1984 prices
Food, beverages output, constant 1984 prices
Textile output, constant 1984 prices
Wood and wood products output, constant 1984 prices
Paper and paper products output, constant 1984 prices
Petroleum refining output, constant 1984 prices
Chemicals output, constant 1984 prices
Non-metallic minerals output, constant 1984 prices
Fabricated metal products output, constant 1984 prices
Other manufactures output, constant 1984 prices
Construction output, constant 1984 prices
Wholesale, retail output, constant 1984 prices
Hotel and restraints output, constant 1984 prices
Transport and storage output, constant 1984 prices
Communications output, constant 1984 prices
Finance output, 1984 prices
Insurance output, 1984 prices
Real estate output, constant 1984 prices

Utility variables

Value of subsidized electricity, constant 1984 prices
Value of subsidized utilities, constant 1984 prices

Dutch disease effect

Exchange rate (dollars/dinar) × GDP deflator/import price index

Inflation effects

Expected increase in private sector output deflator
Unexpected increase in private sector output deflator
Expected increase in non-oil output deflator
Unexpected increase in non-oil output deflator
Expected increase in consumer price index
Unexpected increase in consumer price index

Demand effects

Expected GDP, constant 1984 prices
Gross domestic product, 1984 prices
Expected private sector credit, constant 1984 prices
Private sector credit, constant 1984 prices
Expected level of construction, constant 1984 prices
Unexpected construction, constant 1984 prices
Expected non-oil output, constant 1984 prices
Unexpected non-oil output, constant 1984 prices
Expected government expenditures, 1984 prices
Total investment, constant 1984 prices
Private sector output, constant 1984 prices